



Figure 1A

SEQ ID NO:1

Neisseria meningitidis BASB082 polynucleotide sequence from strain ATCC 13090

ATGGCACAACTACACTCAAACCCATTGTTTATCAATTCTTTAATCAACACACCCCTC
CTCGCCCAAGCGCATGAAACTGAGCAATCGGTGGGC'TTGGAAACGGTTACCGTCGTCGGC
AAAAGCCGTCCGCGCGCCACATCAGGGCTGCTGCACAC'TTCGACCGCCTCCGACAAAATC
ATCAGCGGCGACACCTTGGGACAAAAAGCCGTCAACTTGGGCGATGCT'TTGACGGCGTG
CCGGGCATTACGCCTCGCAATACGGCGGCGGCGGTCCGCTCCCGTTATTTCGCGGTCAA
ACAGGCAGACGGATTAAAGTATTGAACCATCACGGCGAAACAGGCGATATGGCGGATTTT
TCGCCCCGATCACGCCATTATGGTAGATACCGCCTTGTCGCAACAGGTCGAAATCCTGCGC
GGGCGGTTACGCTCTTGACAGCTCGGGCAATGTGGCGGGGCTGGTCGATGTTGCCGAT
GGCAAAATCCCCGAAAAAATGCCTGAAAACGGCGTATCGGGCGAACTCGGATTGCGTTTG
AGCAGCGGCAATCTGGAAAACTCACGTCCGGCGGCATCAATATCGGTTTGGGCAAAAAC
TTTGTATTGCACACGGAAGGGCTGTACCGCAAATCGGGGGATTACGCCGTACCGCGTTAC
CGCAATCTGAAACGCCTGCCCCGACAGCCACGCCGATTTCGCAAACGGGCAGCATCGGGCT
GTCTTGGGTTGGCGAAAAAGGTTTTATCGGCGTACGTACAGCGACCGTCGCGACCAATAT
GGTCTGCCTGCCCACAGCCACGAATACGATGATTGCCACGCCGACATCATCTGGCAAAAG
AGCTTGATTAACAAACGCTATTTACAGCTTTATCCGCACCTGTTGACCGAAGAAGACGTC
GATTACGACAATCCGGGCTTGAGCTGCGGCTTCCACGACGACGATGATGCACACGCCCAT
GCCCCAACGGCAAACTTGGATAGACCTGCGCAACAAACGCTACGAACCTCCGCGCCGAA
TGGAAGCAGCCATTCCCCGGTTTTGAAGCCCTGCGCGTACACCTGAACCGCAACGACTAC
CACCACGACGAAAAAGCAGGCGATGCAGTCGAAAAC'TTTTTTAACAACCAAACGCAAAAC
GCCCCGATCGAGTTGCGCCACCAACCCATAGGCCGTCTGAAAGGCAGCTGGGGCGTGCAA
TATTTGGGACAAAAATCCAGTGCTTTATCTGCCACATCCGAAGCGGTCAAACAACCGATG
CTGCTTGACAATAAAGTGCAACATTACAGCT'TTTTCGGTGTAGAACAGGCAAAC'TGGGAC
AACTTCACGCTTGAAGGCGGCGTACGCGTGGA AAAACAAAAGCCTCCATCCGCTACGAC
AAAGCATTGATTGATCGGGAAAACTACTACAAGCAGCCCTGCCCCGACCTCGGCGCGCAC
CGCCAAACCGCCCGCTCGTTTCGCACTTTCGGGCAACTGGTATTTACGCCGCAACACAAA
CTCAGCCTGACCGCCTCCCATCAGGAACGCCTGCCGTCAACGCAAGAGCTGTACGCACAC
GGCAAAACAGTTGCCACCAACACTTTTGAAGTCGGCAACAAACACCTGAACAAAGAGCGT
TCCAACAACATCGAACTCGCGTTGGGCTACGAAGGCGACCGCTGGCAATACAATCTGGCA
CTCTACCGCAACCGCTTCGGCAACTACATTTACGCCCAAACCTTAAACGACGGACGCGGC
CCCAAATCCATCGAAGACGACAGCGAAATGAAGCTCGTGCGCTACAACCAATCCGGTGCG
GACTTCTACGGCGCGGAAGGCGAAATCTACTTCAAACCGACACCGCGCTACCGCATCGGC
GTTTCCGGCGACTATGTACGAGGCCGTCTGAAAACCTGCCGTCCCTACCCGGCAGGGAA
GATGCCTACGGCAACCGTCTTTCATCGCGCAGGACGACCAAAACGCCCTCGCGTTCCG
GCTGCGCGCCTCGGCTTCCACCTGAAAGCCTCGCTGACCGACCGCATCGATGCCAATTTG
GACTACTACCGCGTGTTTGCCCCAAAACAACTCGCCCCGTACGAAACGCGCACGCCCCGA
CACCATATGCTCAACCTCGGCGCAAAC'TACCGCCGCAATACGCGCTATGGCGAGTGGAAT
TGGTACGTCAAAGCCGACAACCTGCTCAACCAATCCGTTTACGCCACAGCAGCTTCCTC
TCTGATACGCCACAAATGGGCGCAGCTTTACCGGTGGCGTAAACGTGAAGTTTAA



Figure 1B

SEQ ID NO:2

Neisseria meningitidis BASB082 polypeptide sequence deduced from the polynucleotide sequence of SEQ ID NO:1

MAQTTLKPIVLSILLINTPLLAQAHETEQSVGLETVTVVGKSRPRATSGLLHTSTASDKI
ISGDTLRQKAVNLGDALDGVPGIHASQYGGGASAPVIRGQTGRRIKVLNHHGETGDMADF
SPDHAIMVDTALSQQVEILRGPVTLTYSSGNVAGLVDVADGKIPEKMPENGVSSELGLRL
SSGNLEKLTSGGINIGLGKNFVLHTEGLYRKSGDYAVPRYRNLRKLPDSRRFANGQHRA
VLGWRKRFRYRRTYSDRRDQYGLPAHSHEYDDCHADIIWQKSLINKRYLQLYPHLLTEEDV
DYDNPGLSCGFHDDDDAHAAHNGKPWIDLRNKRYELRAEWKQPFPGFEALRVHLNRNDY
HHDEKAGDAVENFFNNQTQNARIELRHQPIGRLKGSWGVQYLGQKSSALSATSEAVKQPM
LLDNKVQHYSFFGVEQANWDNFTLEGGVRVEKQKASIRYDKALIDRENYYKQPLPDLGAH
RQTARFALSGNWFYFTPQHKLSLTASHQERLPSTQELYAHGKHVATNTFEVGNKHLNKR
SNNIELALGYEGDRWQYNLALYRNRFNYIIYAQTLNDGRGPKSIEDDSEMKLVRYNQSGA
DFYGAEGEIIYFKPTPRYRIGVSGDYVRGRKLNLPSPGREDAYGNRPFIAQDDQNAPRVP
AARLGFHLKASLTDRIDANLDYYRVFAQNKLARYETRTPGHHMLNLGANYRRNTRYGEWN
WYVKADNLLNQSVYAHSSFLSDTPQMGRSFTGGVNVKF



Figure 1C

SEQ ID NO:3

Neisseria meningitidis BASB083 polynucleotide sequence from strain ATCC 13090

ATGAAAATATCATTTTCATTTAGCTTTATTACCCACGCTGATTATTGCTTCCCTCCCTGTT
GCTGCCGCCGATACGCAGGACAATGGTGAACATTACACGCCACGCTACCTACCGTTTCC
GTGGTCGGACAGTCCGACACCAGCGTACTCAAAGGCTACATCAACTACGACGAAGCCGCC
GTTACCCGCAACGGACAGCTCATCAAAGAAACGCCGCAAACCATCGATACGCTCAATATC
CAGAAAAACAAAAATTACGGTACGAACGATTTGAGTTCCATCCTCGAAGGCAATGCCGGC
ATCGACGCTGCCTACGATATGCGCGGCGAAAGCATTTCCTGCGCGGTTTCAAGCCGAT
GCATCCGATATTTACCGCGACGGCGTGCGCGAAAGCGGACAAGTGCGCCGACGACTGCC
AACATCGAGCGCGTGGAATCCTGAAAGGCCCGTCTTCCGTGCTTTACGGCCGCACCAAC
GGCGGGCGCGTCATCAACATGGTCAGCAAATACGCCAACTTCAAACAAAGCCGCAACATC
GGTGCGGTTTACGGTTTCGTGGGCAAACCGCAGCCTGAATATGGACATTAACGAAGTGCTG
AACAAAAACGTCGCCATCCGCTCTACCGGCGAAGTCGGGCGCGCCAATTTCGTTCCGCGAGC
GGCATAGACAGCAAAAAATGTCATGGTTTACCCAGCATTACCGTCAAACCTCGACAACGGC
TTGAAATGGACGGGGCAATACACCTACGACAATGTGGAGCGCACGCCCCGACCGCAGTCCG
ACCAAGTCCGTGTACGACCGCTTCGGACTGCCTTACCGCATGGGGTTCGCCACCGGAAC
GATTTTGTCAAAGACAAGCTGCAAGTTTGGCGTTCCGACCTTGAATACGCCTTCAACGAC
AAATGGCGTGCCCAATGGCAGCTCGCCACCGCACGGCGGCGCAGGATTTTGATCATTTTC
TATGCAGGCAGCGAAAAATGGCAACTTAATCAAACGTAACCTACGCTGGCAGCAGACCGAC
AACAAAACCTGTGCTCCAACCTTACGCTCAACGGCGACTACACCATCGGCCGTTTGTAA
AACCACCTGACCGTAGGCATGGATTACAGCCGCGAACACCGCAACCCGACATTGGGTTTC
AGACGCAACTTTACCGCCTCCATCGATCCATACGACCGCGCAAGCAGGCCGGCTTCGGGC
AGATTGCAGCGTATTCTGGCCCAAGACCGGCACAAAGCCGACTCCTACGGCATCTTCGTG
CAAAACATCTTCTCCGCCACGCCCGATTTGAAATTCGTCTCCTCGGCGGTGCTTACGACAAG
TACACCTTTAATTCCGAAAACAACTCACCGGCAGCAGCCGCCAGTACAGCGGACACTCG
TTCAGCCCCAACATCGGTGCAGTGTGGAACATCAATCCCGTCCACACACTTTACGCCTCG
TATAACAAAGCGTTTCGCGCCTTATGGCGGACGCGGCGGCTATTTGAGCATCAACACGTCG
TCTTCCGCCGTGTTCAACGCCGACCCCGAGTACACCGCCAATACGAAACCGGCGTCAAA
AGCAGTTGGCTGGACGACCGCCTCAGCACCACATTGTCCGCCTACCAATCGAACGCTTC
AATATCCGCTACCGCCCCGACGAGCAAAATGATCCTTACACTTGGGCAGTCGGCGGTAA
CACCGTTTCGCGCGGCGTGGAATTGTCCGCCATCGGGCAAATCATCCCCAAAAAACTCTAT
CTGCGCGGTTTCGTTGGGCGTGATGCAGGCGAAAGTCGTTGAAGACAAAAAAATCCCGAC
CGAGTGGGCATCCATTTGAATAATACCAGCAACGTTACCGGCAACCTGTTTTTCCGTTAT
ACACCGACCGAAAACCTCTACGGCGAAATCGGCGTAACCGGTACAGGCAAACGCTACGGT
TACAACCTCAAGAAATAAAGAAGTGACTACGCTTCCAGGCTTTGCCCGAGTTGATGCCATG
CTCGGCTGGAACCATAAAAAATGTTAACGTTACCTTTGCCGCGAGCCAATCTGTTCAATCAA
AAATATTGGCGTTTCGGACTCTATGCCGGGTAATCCGCGCGGCTATACTGCCCGGGTAAAT
TACCGTTTCTGA

SEQ ID NO:4

Neisseria meningitidis BASB083 polypeptide sequence deduced from the polynucleotide sequence of SEQ ID NO:3

MKISFHLALLPTLI IASFPVAAADTQDNGEHYTATLPTVSVVGQSDTSVLKGYINYDEAA
VTRNGQLIKETPQTIDTLNIQKNKNYGTNDLSSILEGNAGIDAAYDMRGESIFLRGFQAD
ASDIYRDGVRESQVRRSTANIERVEILKGPSSVLYGRTNGGGVINMVSKEYANFKQSRNI
GAVYGSWANRSLNMDINEVLNKNVAIRLTGEVGRANSFRSGIDSKNVMVSPSITVKLDNG
LKWTGQYTYDNVERTPDRSPTKSVYDRFGLPYRMGFHRNDFVKDKLQVWRS DLEYAFND
KWRAQWQLAHR TAAQDFDHFYAGSENGNLIK RNYAWQQT DNKTLSSNFTLNGDYTIGRFE
NHLTVGMDYSREHRNPTLGFRNFTASIDPYDRASRPASGRLQRILAQDRHKADSYGIFV
QNIFSATPDLK FVLGGRYDKYTFNSENKLTGSSRQYSGHSFSPNIGAVWNINPVHTLYAS
YNKAFAPYGGRGYLSINTSSSAVFNADPEYTRQYETGVKSSWLDRLSTLSAYQIERF
NIRYRPDEQNDPYTWAVGGKHR SRGVELSAIGQIIPKKLYLRGSLGVMQAKVVEDKKNPD
RVGIHLNNTSNVTGNLFFRYTPTENLYGEIGVTGTGKRYGYNSRNKEVTLPGFARVDAM
LGWNHKNVNVTF AAANL FNQKYWRSDSMPGNPRGYTARVNYRF



Figure 1D

SEQ ID NO:5

Neisseria meningitidis BASB091 polynucleotide sequence from strain ATCC 13090

GTGAACAAAACCTCATCCTCGCCCTTTCCGCCCTCCTCGGCCCTTGCCGCGTGCAGTGCC
GAACGCGCCTCGCTGTACCCCTCATACAAGCTCAAAGTCATACAGGGCAACGAAATCGAC
CCCCGCGCCGCCGCCGCACTCCGCCTCGGTATGACCAAAGACCAAGTCCTGCTCCTGCTC
GGCAGCCCCCTGTTGCGCGACGCGTTCCACACCGAACGCTGGGACTATACCTTCAACACC
TCCCGCAACGGCATCATCAAAGAACGCAGCAATCTGACCGTCTATTTTGAAAACGGCGTA
CTCGTCCGCACCGAAGGCGACGTCCTGCAAAACGCTGCCGAAGCGCTCAAAGACCGCCAG
AACACAGACAAACCATAA

SEQ ID NO:6

Neisseria meningitidis BASB091 polypeptide sequence deduced from the polynucleotide sequence of SEQ ID NO:5

MNKTLLILALSALLGLAACSAERASLYPSYKLKVIQNEIDPRAAALRLGMTKDQVLLLL
GSPLLRDAFHTRWDYTFNTSRNGIIKERSNLTVYFENGVLVRTEGDVLQNAEALKDRQ
NTDKP

SEQ ID NO:7

Neisseria meningitidis BASB092 polynucleotide sequence from strain ATCC 13090

ATGAAAACCTTCTTCAAAACCCCTTCCGCCGCCGCACTCGCGCTCATCCTCGCCGCCTGC
GGCGGTCAAAAAGACAGCGCGCCCGCATCCGCTTCTGCCGCCGCCGACAACGGCGCG
GAGAAAAAAGAAATCGTCTTCGGCACGACCGTCGGCGACTTCGGCGATATGGTCAAAGAA
CAAATCCAAGCCGAGCTGGAGAAAAAAGGCTACACCGTCAAACCTGGTCGAGTTTACCGAC
TATGTACGCCCCGAATCTGGCATTTGGCTGAGGGCGAGTTGGACATCAACGTCTTCCAACAC
AAACCCATCTTTGACGACTTCAAAAAAGAACACAATCTGGACATCACCGAAGTCTTCCAA
GTGCCGACCGCGCCTTTGGGACTGTACCCGGGCAAGCTGAAATCGCTGGAAGAAGTCAAA
GACGGCAGCACCGTATCCGCGCCCCAACGACCCGTCCAACCTTCGCCCCGCGTCTTGGTGATG
CTCGACGAACTGGGTGGATCAAACTCAAAGACGGCATCAATCCGCTGACCGCATCCAAA
GCGGACATTGCCGAAAACCTGAAAAACATCAAAATCGTCGAGCTTGAAGCCGCGCAACTG
CCGCGTAGCCGCGCCGACGTGGATTTTGCCGTCGTCAACGGCAACTACGCCATAAGCAGC
GGCATGAAGCTGACCGAAGCCCTGTTCCAAGAACCGAGCTTTGCCTATGTCAACTGGTCT
GCCGTCAAAACCGCCGACAAAGACAGCCAATGGCTTAAAGACGTAACCGAGGCCTATAAC
TCCGACGCGTTCAAAGCCTACGCGCACAAACGCTTCGAGGGCTACAAATCCCCTGCCGCA
TGGAATGAAGGCGCAGCTAAATAA

SEQ ID NO:8

Neisseria meningitidis BASB092 polypeptide sequence deduced from the polynucleotide sequence of SEQ ID NO:7

MKTFFKTL SAAALALILAACGGQKDSAPAASASAAADNGAEKKEIVFGTTVGDFGDMVKE
QIQAELEKKGYTVKLVEFTDYVRPNLALAEGLDINVFQHKPYLDDFKKEHNLDITEVFQ
VPTAPLGLYPGKLKSL EEVKDGSTVSAPNDPSNFARVLVMLDELGWIKLKDGINPLTASK
ADIAENLKNIKIVELEAAQLPRSRADVDFAVVNGNYA I SSGMKL TEALFQEPSFAYVNWS
AVKTADKDSQWLKDVTEAYNSDAFKAYAKRFEGYKSPA AWNEGA AK



Figure 1E

SEQ ID NO:9

Neisseria meningitidis BASB101 polynucleotide sequence from strain ATCC 13090

GTGAAACCGCGTTTTTTATTGGGCAGCCTGCGCCGTCTGCTGACCGCCTGTTTCGCCCCGAA
CCTGCCGCCGAAAAAACTGTATCCGCCGCATCCGCATCTGCCGCCACACTGACCGTGCCG
ACCGCGCGGGGCGATGCCGTTGTGCCGAAGAATCCCGAACGCGTCGCCGTGTACGACTGG
GCGGCGTTGGATACGCTGACCGAATTGGGCGTGAATGTGGGCGCAACCACCGCGCCGATG
CGCGTGGAATTATTTGCAGCCTGCATTTGACAAGGCGGCAACGGTGGGGACGCTGTTTCGAG
CCCGATTACGAAGCCCTGCACCGCTACAATCCTCAGCTTGTCATTACCGGCGGGCCGGGC
GCGGAAGCGTATGAACAGTTGGCGAAAAACGCGACCACCATAGATCTGACGGTGGACAAC
GGCAATATCCGCACCAGCGGCGAAAAAGCAGATGGAGACCTTGGCGCGGATTTTCGGCAAG
GAAGCGCGCGCGCGGGAATTGAAGGCGCAGATTGACGCGCTGTTTCGCCCAAACGCGCGAA
GCCGCCAAAGGCAAAGGACGCGGCTGGTGCTGTCGGTTACGGGCAACAAGGTGTCCGCC
TTCGGCACGCAGTCGCGGTTGGCAAGTTGGATACACGGCGACATCGGCCTACCGCCTGTA
GACGAATCTTTACGCAACGAGGGGCGACGGGCGAGCCTGTTTCCTTCAATACATCAAAGAG
AAAAACCCCGATTGGATTTTCATCATCGACCGTACCGCCGCCATCGGGCAGGAAGGGCCG
GCGGCTGTCTGAAGTATTGGATAACGCGCTGGTACGCGGCACGAACGCTTGGAAGCGCAAG
CAAATCATCGTCATGCCTGCCGCGAACTACATTGTTCGCGGGCGGCTCGCGGCAGTTGATT
CAGGCGGCGGAGCAGTTGAAGGCGGCGTTTGAAGGCGAGAACCCGTTGCGGCGGGGAAA
GAGTAG

SEQ ID NO:10

Neisseria meningitidis BASB101 polypeptide sequence deduced from the polynucleotide sequence of SEQ ID NO:9

MKPRFYWAACAVLLTACSPEPAEKTVSAASASAATLTVPTARGDAVVPKNPERVAVYDW
AALDTLTELGVNVGATTAPMRVDYLQPAFDKAATVGTLFEPDYEALHRYNPQLVITGGPG
AEAYEQLAKNATTIDLTVDNGNIRTSGEKQMETLARIFGKEARAAELKAQIDALFAQTRE
AAKGKGRGLVLSVTGNKVSAGFTQSRLASWIHGDIGLPPVDESLRNEGHPVVSFEYIKE
KNPDWIFIIDRTAAIGQEGPAAVEVLNLDNALVRGTNAWKRKQIIVMPAANYIVAGGSRQLI
QAAEQLKAAFEKAEPVAAGKE